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2B14-1 82mm MORTAR

SHORT LEAFLET ON USE AND HANDLING

2B14-1.00 D2

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1. INTRODUCTION

This leaflet is intended to familiarize the crew with the 2B14-1 82mm mortar, to include its construction and specifications, safety measures during operation, preparation for use, preparation for the march, crew member responsibilities, technical condition checks, and rules for storage.

Only those who have studied the mortar and who know their responsibilities during operation are allowed to use the mortar.

2. GENERAL INFORMATION ABOUT THE MORTAR

The 2B14-1 82mm mortar is high-trajectory fire weapon and is used for destruction and suppression of enemy troops and weapons of fire located in the open, in trenches, on the opposite slopes of hills, etc., as well as for laying smoke screens and illuminating a given area.

The 2B14-1 82mm mortar is a fixed, smooth-bore system. The mortar consists of the following basic components: the barrel, bipod mounting, base-plate, safety switch, and the MPM-44M sight.

Weight of the mortar in battle configuration, kg	41.88
Weight of the bipod mounting, packed, kg	13.98
Weight of the barrel, packed, kg	16.20
Weight of the base-plate, packed, kg	17.00
Weight of the ammo pouch with 4 bombs, kg	13.00
Weight of the bomb carrier, packed, kg	4.917

3. INSTRUCTIONS ON SAFETY MEASURES

When preparing the ammunition for firing, thoroughly remove any oil and dirt from the bodies of the bombs, being careful to fully dry the tube and tailfins, and to remove any snow and oil in the gas vent.

Bombs with a tail that is not tightly fastened, with cracks in the body, or with missing or broken tailfins are not to be fired.

When inspecting the tails, make sure the cartridges are fully rammed into the tail tubes. If necessary, ram the cartridge case into the back end of the tail tube, carefully pressing on the edge of the case, and protecting the bomb fuse from contact with any object.

If the cartridge will not fit all the way into the tail tube, then either change the cartridge or get rid of the bomb and don't allow it to be fired.

The fuse cap should be removed just prior to loading.

It is prohibited to fire the mortar without the double-load stop.

After letting the bomb fall into the barrel, the loader must quickly take his hands away from the barrel, and move so that his head is below the double-load stop, or move 2-3 steps away from the mortar and to the side.

In the event of a misfire, the mortar commander will cease firing.

THEN WAIT AT LEAST A MINUTE, BUMP THE BARREL TWO OR THREE TIMES (WITH A CLEANING ROD, SHOVEL HANDLE, OR SOME OTHER OBJECT) SO THAT THE BOMB DROPS INTO PLACE. IF IT STILL HASN'T FIRED, WAIT ANOTHER MINUTE, THEN UNLOAD THE MORTAR.

Unload the mortar using the following procedure:

-- place a screwdriver in the slot and press on the carrier (FSM), thus bringing its locking end out of the firing pin slot, and turn the carrier 180° to either side to position "P". The firing pin will release downward, thereby breaking contact between the primer cap of the misfired bomb and the firing pin;

-- place the double-load stop in the "open" position;

-- loosen the barrel in the yoke, and turn the barrel without changing the direction of fire, so that the ball joint of the breech piece comes loose from the base-plate;

-- separate the barrel from the plate and, holding the bipod mounting, carefully raise the breech end of the barrel until the barrel is tilted slightly downward at the muzzle end, with the loader covering the barrel's muzzle with the palms of both hands, to keep the bomb from falling on the ground;

-- as the bomb is leaving the barrel, the loader must carefully take hold of the band with his hands and, keeping the fuse between his palms, pull the bomb out of the barrel and hand it to the ammo bearer.

TO AVOID ACCIDENTAL FIRING, IT IS CATEGORICALLY FORBIDDEN TO LOWER THE BREECH END OF THE BARREL BEFORE THE BOMB IS EXTRACTED.

After unloading, inspect the bore of the barrel, remove any foreign particles and tighten the barrel into the clamp.

Reconnect the slot on the firing pin by turning the carrier 180° in either direction to position "C". Lower the barrel's breech onto the base-plate and insert the ball joint of the breech end into the bearing socket of the base-plate.

Correct the mortar's aim and continue firing.

Inspect the bomb to determine the reason for the misfire.

ATTENTION!

1. WHEN UNLOADING THE MORTAR, THE BARREL MUST BE AT A TEMPERATURE THAT WILL NOT BURN THE HANDS.

2. WHEN TIGHTENING THE BARREL DOWN, BE CAREFUL NOT TO ALLOW THE BARREL CLAMP TO SQUEEZE TOO HARD AROUND THE BORE.

3. IF, PRIOR TO THE NEXT LOADING, THE BLADE (OF THE DOUBLE-LOAD STOP) IS IN THE "CLOSED" POSITION, UNLOAD THE MORTAR IN ACCORDANCE WITH THIS SECTION AND CONTINUE FIRING.

THE FOLLOWING ARE CATEGORICALLY PROHIBITED:

-- firing with wet or dampened charges, as well as incremental charges with damaged cases; putting more than three incremental charges in the bomb's tail tube;

-- overtightening the bore with the barrel clamp;

-- firing bombs with a damaged diaphragm in the fuse;

-- placing bombs in unpadded crates and transporting them in such a manner;

-- smoking in the firing position, especially when ammunition is present;

-- operating with a defective safety switch and firing-safety mechanism (FSM);

-- firing with a damaged barrel and base-plate, as discussed in section 7 of this leaflet.

4. PREPARING THE MORTAR FOR USE

4.1. When preparing the mortar for use:

-- clean away any dirt, dust, or oil from the mortar's parts, inspect them, paying particular attention to the shock absorber rods;

-- separate the safety switch and the breech piece from the barrel, and wipe the bore and breech piece dry;

-- check the functioning of the FSM;

-- assemble the mortar in accordance with paragraph 4.4 of this leaflet. During assembly be sure to check that the breech piece is correctly and completely screwed in, that the double-load stop is fastened to the barrel correctly and completely, that the barrel is securely connected to the base-plate, and that the barrel is fastened in the cradle. Also ensure that the barrel has free play and check the operation of the mechanisms on the mounting bipod;

-- inspect the MPM-44M sight, making sure it is functional and securely fastened; make adjustments to the MPM-44M sight.

FIRING THE MORTAR WITHOUT THE DOUBLE-LOAD STOP OR WITH UNCALIBRATED MORTAR MECHANISMS AND UNCHECKED AIMING ATTACHMENTS IS PROHIBITED.

4.2. Correct set-up of the mortar at the firing position ensures that fire will be effective. Incorrect set-up leads to:

-- poor stability, and as a result, the aim is frequently knocked off; this is accompanied by poorer shot groupings and an increase in ammunition expenditure;

-- settling and breakage of the shock absorber springs, as well as breakage of the individual parts of the bipod and the MPM-44M sight.

Before setting up the mortar, examine the firing position and select the most favorable base for firing.

When setting up the mortar on hard ground (stone, frozen ground, etc.), clear away large rocks and loosen the top layer of soil, or put down a layer of loose soil, sticks, small stones, etc.

When setting up the mortar on soft ground (loose sand, bog, peat, etc.), strengthen the ground beforehand, in order to reduce settling of the base-plate, and to prevent a large loss of aim.

When setting up on sandy ground, first remove the top layer of sand until a completely damp layer is reached, then place sod, bags of dirt, sticks, metal, etc. under the base-plate.

When setting up the mortar in a swamp or boggy ground, strengthen the place where the base-plate will be situated, by driving 5-8 cm thick, 1.5 m long stakes into the ground every 0.5m apart; dirt is then poured over the stakes, and packed down in order to get a solid layer of soil with a thickness of 15-20 cm.

WHEN SETTING UP THE MORTAR ON A CONCRETE (ROCKY) BASE, THE

BARREL'S ANGLE OF ELEVATION MUST BE 50-75° IN ORDER TO PREVENT LOSS OF STABILITY DURING FIRING.

FOR FIRING AT ANY ANGLE OF ELEVATION ON A CONCRETE BASE, A 2mx2mx40cm "CUSHION" MUST BE MADE OF METAL, SAND, OR OTHER MATERIALS ON-HAND.

When firing from poured (sand and gravel) or dry bases, it is necessary to drive spikes through the footplates.

4.3. The most favorable firing positions to choose are on the back slopes of hills, in ravines, hollows, damaged structures (those without a roof), and in large forest clearings. For setting up the mortar it is also possible to use anti-tank ditches, trenches, and craters formed by the explosion of artillery shells, mortar rounds, and aerial bombs.

4.4. The mortar is assembled in the following manner: The base-plate is placed level on the ground. The ball joint is inserted into the bearing socket of the breech piece in such a way that the cylindrical grooves on the pivot bearing and the bearing socket fit together. After fitting the spheres together, the barrel is turned in the direction of fire, and connected with the bipod mounting, which is done by leaning the yoke clamp on the bipod mounting and inserting the barrel into the cradle in such a way that the cradle is located between the circular projections on the barrel. The clamp slips on and is tightened to the cradle with a screw. The position of the bipod on the barrel determines the angle of elevation. The upper cradle position corresponds to angles from 45-59°, and the lower setting is for angles from 54-85°. The bipod legs split apart, and when necessary are connected with the chain.

Next, release the catch on the cross-levelling gear and turn it on the axis until the tip connects with the housing of the elevating gear.

The MPM-44M sight is installed in the socket on the body of the yoke, and is fixed in place with a spring-loaded rod.

> WARNING! THE TILT ANGLE OF THE BIPOD AXIS TOWARD GROUND LEVEL ON THE SIDE OPPOSITE THE BASE-PLATE MUST NOT BE LESS THAN 100°.

5. RESPONSIBILITIES OF THE CREW MEMBERS WHEN PREPARING THE MORTAR FOR USE

The commander directs the work of the crew;
1st member is the aimer;
2nd member is the loader;
3rd member is the ammunition handler;
4th member is the ammunition bearer.

The ammo handler, together with the bearer (members 3 and 4), prepare the ground for the footplates and the base-plate, set the base-plate level on the ground and, taking up the breech piece of the barrel, assist the aimer (member 1) in inserting the ball joint of the breech piece into the socket on the base-plate. The aimer then turns the barrel in the direction of fire, and hands it over to the ammo handler (member 3).

The loader (member 2) sets up the bipod mounting, folds over the yoke clamp and, supporting the bipod by the yoke and the shock absorbers, assists the handler (member 3) in installing the barrel in the cradle and tightening the clamp, being careful not to allow the clamp to overtighten on the barrel. The loader connects the cross-levelling gear.

The aimer (member 1) secures the bipod in the ground and installs the MPM-44M sight on the mortar. The mechanisms of the MPM-44M sight are set in the "zero" position. By operating the elevating gear, the aimer sets the bubble of the longitudinal level to the middle, watching to make sure the white line is at the top, and does not deviate to the side. Taking the handle of the cross-levelling gear, he sets the bubble of the cross level to the middle on the MPM-44M sight, and checks the fastening of the safety switch on the barrel.

The ammo handler (member 3) inspects the bombs and prepares them for firing.

The ammo bearer (member 4) takes the tools and bombs from the pouches (bomb carriers) and places them behind the mortar. He prepares the bombs for firing.

The mortar is converted from combat configuration to march configuration in the following manner:

-- the aimer and the loader (members 1 and 2) break down the mortar to its basic components; before disassembly the aimer puts the padding on the barrel, and puts the discharge/muzzle cover and pack on the bipod mounting;

-- the ammo handler (crew member 3) gathers the remaining bombs, removes the incremental charges from them, and gets them ready to be stowed in the pouches or bomb carriers; he also pulls the plate from the ground, cleans the dirt off, and packs it, and then helps the ammo bearer stow the bombs in the pouches or bomb carriers;

-- the ammo bearer (crew member 4) takes the pouches or bomb carriers with the packing to the mortar, prepares them for bomb stowage, helps the ammo handler gather the remaining bombs, and stows them in the pouches or bomb carriers; he closes the pouches (bomb carriers) that are full of bombs, packs the bomb carriers, and stows the remaining bombs and charges in the crate.

6. PREPARING THE MORTAR FOR THE MARCH

When carrying the mortar, the following packings are used: the packing for the barrel, the packing for the bipod mounting, and the packing for the base-plate.

For carrying the bombs, each mortar set includes pouches (bomb carriers), and packing for the bomb carriers.

Packing the barrel:

-- put the yoke on the barrel (if it was removed from the barrel) from the muzzle end, between the circular projections, and fasten it with the clamping screw;

-- put the cover on the muzzle portion of the barrel;

-- put the loop of the strap around the pin on the breech piece;

-- fasten the cover strap to the shoulder strap;

-- connect the shoulder straps with pads to the yoke;

-- wrap the middle part of the barrel with padding, and fasten the straps;

-- tie up the waist bands.

Packing the bipod mounting:

-- bring the bipod legs together until the footplates make contact, wrap them with the chain, and fasten the chain (fasten with a hook through one of the links);

-- place the shock absorbers with the bodies on the bipod, and fasten them with a strap and compressors;

-- tie up the waist bands.

Packing the base-plate:

-- place the packing on the plate; the handle of the plate must coincide with the upper part of the packing;

-- with the short upper straps behind the brackets located on the main plate, fasten the packing to the plate.

-- run the belts/straps through the plate brackets one at a time, such that the aforementioned brackets on the main plate are at a greater distance from one another than the ones before;

-- fasten the belts/straps to the shoulder straps, after having adjusted the shoulder straps;

-- tie up the waist bands.

Packing the bomb carriers:

-- place the packing with the liner on the ground, and lay all the straps out to the sides;

-- place the bomb carrier on the packing with the handles toward the upper part of the packing with the frames;

-- throw the long ends of the straps with the sewn-on buckles over the bomb carrier, and stretch them over the frames;

-- place the second bomb carrier with the handle on the same side as the first;

-- throw over the long ends of the straps with the sewn-on buckles, stretch the straps through the loops over the bomb carrier, fully tighten the straps, and safely fasten them with the buckles;

-- turn the packing over with the liner facing up, and fasten the shoulder straps to the lower straps.

7. GENERAL INSPECTION (GI)

A general inspection of the mortar is conducted before leaving the depot, on the march, and before firing, exercises, or training.

Inspecting the barrel:

The barrel is inspected in order to detect any fouling of the bore;

-- damaged paint;

-- dents or bulges in the barrel;

-- cracks on the outer or inner surfaces;

-- rust.

Surfaces with a damaged paint coating should be lubricated with oil, and painted at the first opportunity, except for the ball joint, which is not painted. To remove rust on the outer surfaces or in the bore, the contaminated area must be washed with plenty of kerosene, and be allowed to stand for several hours, after which time the rust is removed with a rag. If the rust does not come off, a rust-removing solution should be used. If deep dents exist on the barrel surface, check to see if the dents are also causing internal distension. A barrel with such defects is not to be used for firing.

One sign of barrel bulging is the existence of shady rings in the bore which are visible to the naked eye. External bulging of the tube is noticeable by light between the barrel and the sight rule, which shows up along the barrel in the area of the suspected bulge.

A mortar with bulging of the barrel is not to be fired.

Cracks in the outer surface of the barrel are detectable either with the eye or with the help of a magnifying glass. The existence of cracks in the bore can be determined by checking the appropriate area with a needle driven into the end of a pole. A barrel with cracks is not to be used for firing.

Check the functioning of the FSM mechanism in the breech piece.

Inspecting the bipod mounting:

Wipe off the bipod mounting and inspect it carefully. All parts and assembly units must be functional, properly assembled and fastened, and there should be no corrosion or unpainted places on any parts.

Inspect the traversing gear, the elevating gear, and the cross-levelling gear, and check their functioning. The mechanisms must operate smoothly, without jerking or jamming.

The shock absorbers should operate smoothly, vigorously returning to the start position without jamming or jerking.

Wipe off the footplates of the bipod mounting, checking to make sure there is no corrosion or cracking in the welded seams. Corrosion should be removed with a brush, and the affected area should be painted.

A bipod mounting with cracks is not to be used for firing.

Inspecting the base-plate:

Wipe off the plate and check for the presence of:

-- cracks, especially in the welded seams and the ball socket;

-- rust;

-- damaged paint.

Rust must be removed from the plate, after which the surface from which the rust was removed must be painted.

A plate with cracks is not to be used for firing.

Inspecting the safety switch:

Carefully inspect the parts of the double-load stop. Check its functionability when it is installed on the barrel. The blade should vigorously return to the "open" position without jamming, when the lever jumps away from the shell platform.

When dropping a bomb into the barrel, the blade should move to the "closed" position.

Inspecting the MPM-44M sight:

Wipe off the MPM-44M sight, and check:

-- the completeness and functionability of the optical instruments and levels;

-- the functioning of the sight's mechanisms; the drums must turn smoothly, without jamming;

-- the backlash of the clinometer and the mechanisms of the traversing gauges. The backlash of the clinometer should be checked at least 3 times, using the arithmetic average for its size. The size of backlash for the clinometer and the mechanisms of the elevating gauges must not exceed 0-01.

Inspecting the spare parts, tools, and accessories (ZIP):

Check the presence and condition of the parts and accessories of the ZIP; make sure the tools are properly stored and functional.

After checking the parts of the ZIP, lubricate them with oil, wrap them in oil-paper, and pack them in the 2B14-1.01.2Sp pouch.

8. CHECKING THE TECHNICAL CONDITION

A check of the mortar's technical condition is conducted to determine the possibility of using it in a direct function.

The check is conducted on the assembled mortar according to the chart.

What is checked. Method of the check.	Requirements
1. Smoothness of movement in the moving parts. Check by turning the handles on the aiming mechanism and by pressing on the shock absorbers through the yoke.	The movement of the shock absorber rods and the components of nents of the elevating, traversing, and cross-levelling gear must be smooth, without jerking or jamming.
2. The position of the blade on the double-load stop. Visually.	Must be in the "open" position before loading, but closed when there is a bomb in the bore.
3. The technical condition of the barrel, the base-plate, the bipod mounting, ZIP, the safety switch, and FSM. Visually.	See section 7 of this leaflet.
4. The adjustment of the MPM-44M sight.	Section 2, 4.2 2B14-1.00T0
5. The safety of the aiming gauges. Check using a clinometer.	See Table 1 2B14-1.00T

The detail conducting the checks shown in the chart should also ensure that:

-- the operational are present, as per 2B14-1.00E1;

-- the logbook entries and dates are correct;

-- the mortar equipment is complete;

-- the double-load stop is complete;

-- the MPM-44M sight, the K-1 collimator, and the Luch-PM2M device are complete and that periodic checks have been performed on time;

-- the ZIP is complete.

9. RULES FOR STORAGE IN FIELD CONDITIONS AND IN STOREHOUSES

In a barracks accommodation, the mortar is stored in a closed, dry place, either fully assembled, or disassembled into its basic components (with the packings in racks or shelves which must be elevated no less than 15-20 cm above the floor).

In depot or camp conditions, it is necessary to store the mortar in an assembled state, and the packings in a closed area.

For short-term breaks in field conditions, it is necessary to:

-- place the cover over the muzzle of the barrel;

-- remove the MPM-44M sight and place it in the crate.

10. LIST OF LUBRICANTS FOR SERVICING THE MORTAR

Lubricant VNII-NP-232 GOST 14068-79	threads on the body of the breech piece and on the barrel, and the parts of the FSM.
Plastic lubricant GOI-54p	the ball joint, unpainted GOST 3276-74 surfaces of the aiming gear, the shock absorber rods, and the bore.
Plastic lubricant PVK GOST 19537-83	protection for long-term storage -- the ball joint, unpainted surfaces of the aiming gear, and the shock absorber rods.